New Gastropod Taxa from Tropical Western America

BY

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(1 Plate; 2 Text figures)

INTRODUCTION

During the past decade and a half I have collected extensively in the Panamic region of the Eastern Pacific. My collecting localities range from Magdalena Bay, Baja California, throughout the Gulf of California and the West Mexican mainland southward to Panama and Ecuador.

This paper offers for validation two new columbellid genera and 9 gastropod species, most of which I have personally collected from the above mentioned region.

A companion paper, in which I am describing 10 new turrid species, is now in press.

Abbreviations for type repositories mentioned in the text are as follows:

AHF	Allan Hancock Foundation (collection on loan to LACM)
AMNH	American Museum of Natural History New York, N. Y.
ANSP	Academy of Natural Sciences, Philadelphia
CAS	California Academy of Sciences, San Francisco
LACM	Los Angeles County Museum of Natural History
SDNHM	San Diego Natural History Museum
SU	Stanford University Collection, Stanford, California
USNM	United States National Museum Washington, D. C.

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Macrarene spectabilospina Shasky, spec. nov.

(Figures *1* and *2*)

Diagnosis: Shell similar to *Macrarene farallonensis* (A. G. Smith, 1952), but more spinose and with deeply impressed square pits on either side of the main basal carina.

Description: Shell of medium size, depressed, turbinate, of pale brown color; nucleus of one partially submerged smooth whorl; the 3½ remaining whorls highly sculptured; suture a deeply submerged canal; axial ribs about 16 initially, dwindling to about 12; the ribs begin as low rounded ridges increasing rapidly in strength and becoming rather precipitous; the ribs separated by deep wide troughs; ribs noded at the shoulder then continue on to terminate in recurved channeled spines; the troughs between the ribs are filled with fine orthocline growth lines; spiral sculpture of 2 undulating, rather weak carinae; the adapical carina forming weak webs between the nodes of the shoulder and the abapical carina forming much stronger webs between the spines; on the base of some specimens, primarily the immature ones, a weak rib reappears at the abapical root of the spines and on the more mature specimens the ribs are obsolete except near the umbilicus; the base of the body whorl is surrounded by a very strong spiral cord that disappears into the umbilicus; this cord is crossed by equally strong but short ribs forming deep rectangular pits on either side; aperture round, pearly, smooth; operculum concave, multispiral, with 5 calcareous beads and chitinous bristles at the margin. Dimensions of the holotype: height 10.1 mm, diameter 14.1 mm.

Type Locality: Gulf of Tehuantepec, Chiapas, Mexico, 15°08′ N; 93°23′ W, 82 m, rocky bottom, San Juan Expedition station N-13, 10 July 1963, 6 specimens, collected by Donald Shasky.

Type Material: Holotype, LACM 1409; single paratypes, AMNH, CAS, SDNHM, USNM, Shasky Collection.

Referred Material: Shasky Collection, station D-2, Gulf of Tehuantepec, Oaxaca, Mexico, 15°56′ N; 95°32′ W, 52 m, rocky bottom, 1 specimen.

Discussion: *Macrarene spectabilospina* is the most spinose species of the genus described to date. Its closest affinity is with *M. farallonensis* from the central California coast. *Macrarene farallonensis* differs principally in lacking the deeply impressed square pits on either side of the main basal carina.

The species name is derived from the Latin *spectabilis,* showy, and *spina,* spine or thorn.

Lapsigyrus myriosirissa Shasky, spec. nov

(Figure *3*)

Diagnosis: A non-shouldered *Lapsigyrus* with many more spiral threads and axial riblets than the type species of the genus, *L. contrerasi* (Jordan, 1936).

Description: Shell minute, white, 6-whorled; nucleus glassy, semitransparent, helicoid, of 2½ whorls; spiral sculpture of thin threads with 11 on the penultimate and 18 on the body whorl; the 5 terminal threads on the base are about twice as strong as the preceding threads; minute axial riblets fill the channels between the threads with resultant innumerable, very minute squarish pits; suture indistinct; aperture large, pyriform, and with a shallow posterior canal at the apex; columella angled about 45° in relation to the longitudinal axis; outer lip varicose, smooth within. Dimensions of holotype: height 3.3 mm, diameter 1.5 mm.

Type Locality: Punta Tiburon, Mazatlan, Sinaloa, Mexico, 23°12′30″ N, 106°26′30″ W, one hermit crab specimen collected at low tide by Donald Shasky, 22 December 1962.

Type Material: Holotype, LACM 1410.

Discussion: The genus *Lapsigyrus* was erected by Berry (1958, p. 92) for *Alvania contrerasi* Jordan, 1936, a Pleistocene fossil from Magdalena Bay, Baja California. Berry has reported *L. contrerasi* in Recent siftings from the vicinity of Puerto Peñasco, Sonora, Mexico. I have collected 2 dead specimens of *L. contrerasi* from 20 m in Olas Altas Bay, Mazatlan, Sinaloa, Mexico.

Lapsigyrus contrerasi is distinctly shouldered on the first 2 postnuclear whorls, while *L. myriosirissa* is not shouldered. It further differs from *L. contrerasi* by having about twice as many spiral threads and much finer and more numerous axial riblets. The name of the new species is derived from the Greek *myrios,* numberless, and *siros,* pit.

Lapsigyrus milleriana (Hertlein & Strong, 1951) from Ballena Bay, Costa Rica, appears to be a junior synonym of *L. contrerasi.*

Coralliophila macleani Shasky, spec. nov.

(Figure *4*)

Diagnosis: A variable species similar in morphology and habitat to *Coralliophila caribaea* Abbott, 1958, from the Caribbean Sea and the Gulf of Mexico. *Coralliophila macleani* differs from *C. caribaea* by having tabulate whorls and a proportionally larger body whorl.

Description: Shell medium sized, white, rather globose; protoconch of 3½ mammillate whorls that are usually eroded smooth on larger specimens but occasional juvenile specimens show numerous, very fine microscopic riblets and one or two spiral threads; subsequent whorls 4, tabulate; these rapidly expand so that the body whorl is more than ⅔ of the height of the shell; sculpture variable, most specimens with delicately scalloped spiral cords of varying strength, the strongest at the shoulder; fully mature specimens have 7 cords on the tabulate portion of the body whorl; individual specimens vary as to strength of axial ribbing, which is usually present on the early whorls but frequently disappears on the body whorl; ribs vary in number from 13 to 15 on the penultimate whorl; when axial ribs are present on the body whorl the sculpture becomes rather nodose; suture impressed; aperture broadly trigonal, glistening white; outer lip crenulate, widely flaring, with situs aberrations not unusual; columella straight, extending into a short, open siphonal canal that may be straight, bent, or recurved; umbilicus, when present, a shallow pit; operculum corneous, yellowish-brown to dark brown, with nucleus excentrically placed. Dimensions of holotype: height 17.6 mm, diameter 12.0 mm, height of aperture 13.0 mm.

Type Locality: Saladita Bay, Guaymas, Sonora, Mexico, 27°53′15″ N, 110°59′ W, 3 - 4 m on the bases of white gorgonid sea whips, December 1958, and December 1959, 21 specimens, collected by Donald Shasky.

Type Material: Holotype, LACM 1411; 1 paratype, LA CM 1412; single paratypes, AMNH, ANSP, CAS, SDN HM, SU, and USNM; 13 paratypes, Shasky Collection.

Referred Material: LACM H3935, Adair Bay, Sonora, 1 specimen; LACM 66-12, Cape San Lucas, Baja Cali-

fornia, 25 - 100 feet, 10 specimens; Shasky Collection: Norse Beach, Puerto Peñasco, Sonora, 6 specimens; west side, Venado Island, Mazatlan, Sinaloa, Mexico, 3 - 10 m, 7 specimens.

Discussion: *Coralliophila macleani* is so variable that a composite description would confuse the reader. The apertural variations are undoubtedly due to its rather sedentary existence on the base of its gorgonid host. The largest specimen observed measures 24.3 mm in height (Shasky Collection, Puerto Peñasco). The outer lip is frequently quite thin and sometimes fractures as the shell is removed from the host.

It is my pleasure to name this species for Dr. James H. McLean, Curator of Invertebrate Zoology, Los Angeles County Museum of Natural History.

Anachis ***berryi*** SHASKY, spec. nov.

(Figure 5)

Diagnosis: Closest to *Anachis gracilis* (C. B. ADAMS, 1852) and *A. rehderi* (HERTLEIN & STRONG, 1951). *Anachis gracilis* is a chunkier and much more striate shell than *A. berryi*. *Anachis rehderi* differs by having a subsutural cord and an outer lip lacking the adapical notch and the denticles.

Description: Shell small, slender, 8-whorled; protoconch of 2 glassy, smooth, slightly inflated whorls; sculpture of postnuclear whorls, except the body whorl, of axial ribs that are lightly noded just below the suture and again about $\frac{1}{3}$ of the length of the ribs below the suture; axial ribs number about 22; faint spiral threads commence in the middle of the body whorl and become stronger abapically; suture a shallow, undulate groove; outer lip shallowly notched abapically to the suture, and with 3 strong denticles and one or 2 lirae abapically to the notch, the adapical tooth the strongest; columella with 2 or 3 very faint lirae; canal short and recurved; color light yellowish-tan with scattered triangular brown blotches; dimensions of holotype: height 9.2 mm, diameter 3.3 mm.
Type Locality: El Pulmo Reef, Baja California, Mexico, 23°26′ N, 109°25′ W, 1 - 3 m, rocky bottom, 23 - 25 April 1965, 40 specimens, collected by Donald Shasky.

Type Material: Holotype, LACM 1413; 2 paratypes, LA CM 1414; 2 paratypes each, AMNH, ANSP, CAS, SD NHM, SU, USNM; 25 paratypes, Shasky Collection.

Referred Material: LACM 66-7, South side, Cabo Pulmo, 2 specimens; LACM 65-13, East Anchorage, Maria Cleophas Island, Tres Marias Islands, Mexico, 5 specimens.

Discussion: Sufficient comparison has been made under the diagnosis.

This species is named in honor of Dr. S. Stillman Berry, of Redlands, California, whose depth of knowledge and friendly assistance have frequently been used by this struggling author.

Radwinia SHASKY, gen nov.

(Figure 11)

Radwinia is proposed as a new columbellid genus characterized by a smooth 3-whorled protoconch; by centrally inflated, noded whorls; a sharply varicose, unnotched, denticulate outer lip; a faintly lirate columella; and a short well-differentiated, backward curved anterior canal.

Type Species: ***Radwinia tehuantepecensis*** SHASKY, spec. nov.

Radular Description (Figure 11[E]): Each transverse radular row consists of a single rachidian plate, flanked on each side by a single lateral tooth. The rachidian plate is simple, subrectangular, and is gently bent at the ends. There are no cusps and no apparent cutting edge.

The lateral teeth have a sickle-like form. The tooth is oriented in a single plane, with a main shaft, bearing a large primary cusp distally. Proximally there is a broad deep bight followed by a sharply hooked secondary cusp. Most proximally, following a smaller gap, there is a narrow extension of the main shaft with a smaller sharp spur-like cusp. A notable thickening extends along the proximal edge of the main shaft for $\frac{3}{4}$ of its length. Another thickening is apparent on the proximal spur and extends proximally to the end of the extension of the main shaft.

The rachidian plate resembles those of other columbellid genera. The lateral teeth resemble those of many species of the buccinid genus *Phos*. Only the extended main shaft, its attached spur, and the thickening of these areas are unique to the lateral teeth of this genus and species.

Discussion: Genera related to ***Radwinia*** are *Nassarina* DALL, 1889; *Cigclirina* WOODRING, 1928; and *Zanassarina* PILSBRY & LOWE, 1932. ***Radwinia*** has a 3-whorled nucleus while *Nassarina* has but $1\frac{1}{2}$ nuclear whorls. *Nassarina bushii*, the type species of the genus, has fine spiral striations on the last portion of the nucleus while the entire

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(E) Editor's note: Figure numbers in *Italics* refer to illustrations on halftone plates, whereas Roman numbers refer to illustrations in the text.

Radwinia nucleus is smooth. From *Zanassarina, Radwinia* differs by the absence of an anal notch and by having a well-differentiated anterior canal. *Radwinia* does not have the fine reticulate sculpture of *Cigclirina*; furthermore, *Cigclirina* has an anal notch.

The new genus is named for Dr. George Radwin, curator of mollusks at the San Diego Museum of Natural History. His work with the Columbellidae will hopefully, in time, provide answers to many of the unresolved problems within this family.

Radwinia tehuantepecensis SHASKY, spec. nov.

(Figures 6 and 11)

Diagnosis: An elongate shell unlike any other West American Columbellid.

Description: Shell small, brown, elongate fusiform, 10-whorled; protoconch conical, smooth, 3-whorled; axial ribs extend from suture to suture, but are not continuous; axial ribs 13 or 14 on late whorls; 3 strong spiral cords cross over the central part of the whorls and one weak spiral thread crosses adapically to the suture; there are 10 or 11 spiral cords and threads on the body whorl; the intersections of axial ribs with the spiral cords are nodose, with squarish pits between; nodes whitish; suture an indistinct groove; pillar sculptured with closely spaced opisthocline spiral threads; body whorl strongly varicose near the outer lip; outer lip with 4 or 5 denticles within; columella faintly lirate; anterior canal open, recurved. Dimensions of holotype: height 8.7 mm, diameter 2.8 mm.

Type Locality: Between San Simeon and Puerto Madero, Gulf of Tehuantepec, Chiapas, Mexico, 30 - 55 m, July 1961, 6 specimens, collected by Carlos Carballo, Jr.

Type Material: Holotype, LACM 1415; single paratypes, CAS, SDNHM, SU, USNM, and Shasky Collection.

Discussion: The placement of this genus and species is not certain. Radular affinities for both Columbellidae and Buccinidae are indicated. The aperture is distinct from any of the species within the *Anachis, Nassarina, Zanassarina, Cigclirina* group of columbellids.

Special thanks are due to Dr. George Radwin for the radular preparation and description, and to Mr. Anthony D'Attilio for the radular drawing.

Ruthia SHASKY, gen. nov.

(Figure 12)

Ruthia is proposed as a new columbellid genus for elongate shells with a trochoid nucleus of 2 or 3 whorls; somewhat flattened postnuclear whorls with noded axial ribs, which extend from suture to suture; an oval aperture with a lirate outer lip, which may or may not have a faint anal notch; a smooth columella; and a short anterior canal. Type species: ***Ruthia mazatlanica*** SHASKY, spec. nov.

Radular Description (Figure 12): The radula is columbelloid. Each transverse row consists of a single rachidian plate, flanked on each side by a single lateral tooth. The rachidian plate is simple, subrectangular and gently bent at the ends, imparting a roughly crescent-like appearance to it. There are no cusps or other outstanding features. As in the radulae of other columbellid species, the rachidian plate appears to be largely non-functional, as there is no apparent cutting edge.

The lateral teeth are considerably more complex. Each tooth has 2 distinct axes, essentially at right angles to

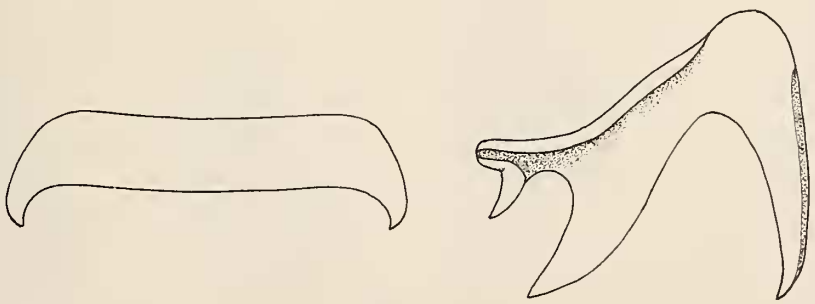

Figure 11

Radula of *Radwinia tehuantepecensis* SHASKY, spec. nov., paratype. Left, rachidian tooth; right, lateral tooth. Greatly enlarged. Drawn by Anthony D'Attilio.

each other. The main axis is curved in a sickle-like manner and has, in addition to the primary, distal cusp, 2 smaller, slightly bent, proximal cusps. If the major axis is seen from the side, allowing the most complete view of the cusps, the minor axis projects out of the plane in view and is seen in a severely foreshortened aspect. It bears no cusps or other features and is generally rectangular. An attempt to understand the entire structure of the tooth with only the major axis in focus imparts a superficially sigmoid appearance to it.

Discussion: ***Ruthia*** has characters of the buccinid genera *Phos* MONTFORT, 1810, and *Strombinophos* PILSBRY & OLSSON, 1941, and the fossil columbellid genus *Strombinella* DALL, 1896. Since ***Ruthia*** is a columbellid, comparisons with the buccinids will not be made here. *Strombinella* has a subsutural collar similar to the terebrid subgenus *Strioterebrum*. This is lacking in ***Ruthia***. Immature specimens of ***Ruthia*** or specimens with the outer lip broken could be confused with the turrid genus *Clavus* MONTFORT, 1810.

Ruthia is named in honor of Ruth Shasky, my wife and longsuffering partner on many collecting trips. Her patience and continued encouragement are especially appreciated.

Ruthia mazatlanica SHASKY, spec. nov.

(Figure 7)

Diagnosis: A small elongate brown-shelled species similar to the following species, but with one more nuclear whorl, and several other differences which are noted later.

Description: Shell small, turriculate, dark greyish-brown, 10-whorled; nucleus smooth, trochoid, 3-whorled; postnuclear whorls flattened, the first with 8 axial ribs, the second with 7, and succeeding whorls with 6 except on the body whorl which has a 7th rudimentary rib next to the terminal rib; terminal rib very strong, producing a varix; ribs extend from suture to suture, but are usually offset; ribs tapered, with abapical portion the wider; ribs, except on the last whorl, with 2 dark cream-colored nodes; body whorl with 6 to 8 similarly colored nodes, most being interconnected with spiral threads; suture a shallow, undulate groove; aperture oval; columella smooth; outer lip with a slight outward flare, and with 6 lirae within, the adapical the strongest; anterior canal short, open; anal notch lacking; operculum chitinous, brown, unguiculate. Dimensions of holotype: height 12.4 mm, diameter 3.9 mm, height of aperture 3.9 mm.

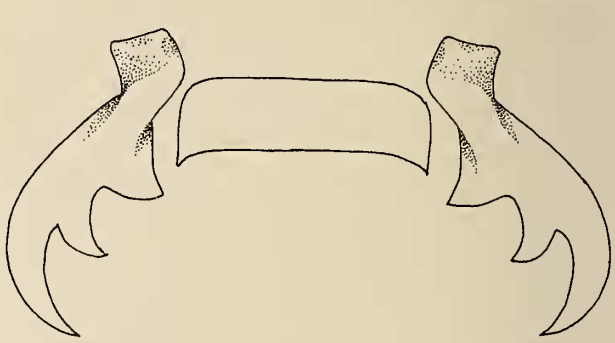

Figure 12

Radula of ***Ruthia ecuadoriana*** SHASKY, spec. nov., holotype. Center, rachidian tooth; left and right, lateral teeth. Greatly enlarged. Drawn by Anthony D'Attilio.

Plate Explanation

Figures *1, 2*: ***Macrarene spectabilospina*** SHASKY, spec. nov. Holotype, LACM 1409. Gulf of Tehuantepec, Mexico. Height 10.1 mm, diameter 14.1 mm. × 4.0

Figure *3*: ***Lapsigyrus myriosirissa*** SHASKY, spec. nov. Holotype LACM 1410. Mazatlan, Mexico. Height 3.3 mm, diameter 1.5 mm. × 13

Figure *4*: ***Coralliophila macleani*** SHASKY, spec. nov. Holotype, LACM 1411. Guaymas, Mexico. Height 17.6 mm, diameter 12.0 mm. × 2.6

Figure *5*: ***Anachis berryi*** SHASKY, spec. nov. Holotype, LACM 1413. El Pulmo, Baja California. Height 9.2 mm, diameter 3.3 mm. × 6.5

Figure *6*: ***Radwinia tehuantepecensis*** SHASKY, spec. nov. Holotype, LACM 1415. Gulf of Tehuantepec, Mexico. Height 8.7 mm, diameter 2.8 mm. × 8.3

Figure *7*: ***Ruthia mazatlanica*** SHASKY, spec. nov. Holotype USNM 567103. Mazatlan, Mexico. Height 12.4 mm, diameter 3.9 mm. × 4.7

Figure *8*: ***Ruthia ecuadoriana*** SHASKY, spec. nov. Holotype, LACM-AHF 1417. Cape San Francisco, Ecuador. Height 14.6 mm, diameter 4.8 mm. × 4.0

Figure *9*: ***Columbella socorroensis*** SHASKY, spec. nov. Holotype, LACM 1418. Socorro Island, Mexico. Height 18.7 mm, diameter 9.2 mm. × 2.6

Figure *10*: ***Strombina (Cotonopsis) mendozana*** SHASKY, spec. nov. Holotype, LACM 1419. Gulf of Fonseca, El Salvador. Height 22.5 mm, diameter 9.1 mm. × 2.6

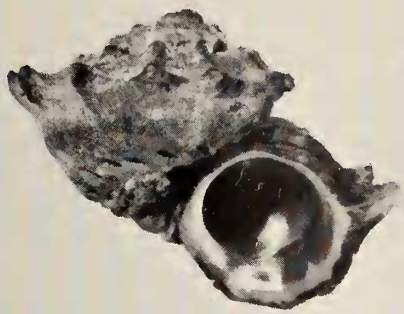

Figure 1

Figure 2

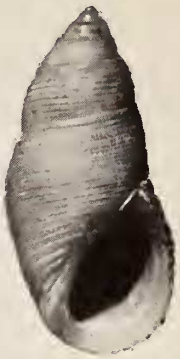

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Type Locality: Between Azada Island and Pala Point, Mazatlan, Sinaloa, Mexico, 23°11′ N, 106°27′ W, 3 - 4 m, gray sand, 11 - 16 April 1940, 2 specimens collected by Russell Hawkins, Jr.

Type Material: Holotype, USNM 567103; 1 paratype, 679563. Additional paratype, USNM 567008, east of Azada Island, 3 - 4 m, Hawkins. Twenty-three paratypes (hermit crab shells) from east side of Chivos Island, Mazatlan, 26 December 1962 and 19 December 1964, collected by Ruth, Mike, and Donald Shasky, single specimens distributed as follows: AMNH, ANSP, CAS, LA CM, SDNHM, SU, and USNM; 16 paratypes, Shasky Collection.

Referred Material: Helen DuShane Collection (Whittier, California), Los Angeles Bay, near Tenacatita Bay, Jalisco, Mexico, 11 m, 1 specimen.

Discussion: The ribs of the holotype are offset more than on most specimens. For comparison see the discussion under the following species.

Azada and Chivos Islands are no longer separate islands. Older maps show Pala Point, on the mainland, separated from Creston Island with Azada Island in between. Because of extensive filling between Pala Point and Creston Island, Azada Island no longer exists and Creston Island is now shown as Creston Point. The sportfishing fleet docks on the harbor side of where Azada Island used to be. Chivos Island, directly across the harbor channel, is still listed on modern maps as an island, but it is connected on the east side to the mainland by a wide breakwater.

It is doubtful that ***Ruthia mazatlanica*** could be found living in the harbor channel; however, shallow dredging on the southeast side of Chivos Island and in the sand between the boulders north of where Azada Island was probably would produce additional live specimens.

Ruthia ecuadoriana Shasky, spec. nov.

(Figures 8 and 12)

Diagnosis: Similar to *Ruthia mazatlanica,* but distinguished by its larger size, yellow color, 2 rather than 3 nuclear whorls, and other sculptural differences.

Description: Shell small, yellow, turriculate, 9-whorled; nucleus smooth, trochoid, 2-whorled; early postnuclear whorls flattened, later whorls somewhat inflated; first postnuclear whorl with 8 and succeeding whorls with 7 axial ribs, except on the body whorl where there is a much smaller rib adjacent to the terminal rib; terminal rib strong, forming a labial varix; ribs tapered with abapical portion wider; ribs extend from suture to suture, but are slightly offset on some whorls; ribs of early whorls with 2 nodes, but increasing to 3 nodes on the penultimate whorl; penultimate whorl nodes are connected between the ribs with faint spiral threads; on the body whorl the ribs are crossed with about 9 spiral threads that are strongest where they cross the ribs; suture an undulate groove; aperture oval; outer lip varicose and with an outward flare; inner lip with 6 lirae, the adapical the strongest; abaxial to the strong lira there is a very shallow depression for an anal notch; anterior canal short, open; columella smooth. Dimensions of holotype: height 14.6 mm, diameter 4.8 mm, height of aperture 5.2 mm.

Type Locality: Off Cabo San Francisco, Ecuador, 0°39′30″ N, 80°06′30″ W, 4 m, mud and rock bottom, R/V *Velero* III station 214-34, 11 February 1934, 1 specimen.

Type Material: Holotype, LACM-AHF 1417.

Discussion: The differences between the 2 species of ***Ruthia*** are as follows:

Table 1

	Ruthia mazatlanica	*Ruthia ecuadoriana*
Number of whorls	10	9
Height of shell	12.4 mm	14.6 mm
Color	Dark grey-brown with yellowish nodes	Solid yellow
Shape of post-nuclear whorls	Flattened throughout	Penultimate and body whorl somewhat inflated
Number of axial ribs	Six ribs with 7th short rib on body whorl	Seven ribs with 8th short rib on body whorl
Nodes on ribs	Two nodes throughout	Three nodes on ribs of penultimate whorl
Spiral threads of body whorl	Weak	Stronger
Anal notch	Lacking	Shallow depression

The radular mount and description is by Dr. George Radwin, and the radular drawing by Mr. Anthony D'Attilio, both of the San Diego Natural History Museum.